



08/22/97

PATENT

DON02 P-677

Express Mail No. EM572206189US

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jeffrey A. Lewno

For : BONDED VEHICULAR GLASS ASSEMBLIES UTILIZING TWO-  
COMPONENT URETHANES, AND RELATED METHODS OF  
BONDING

BOX FWC

Assistant Commissioner for Patents

Washington, D.C. 20231

Dear Sir:

FILE WRAPPER CONTINUING APPLICATION (FWC)  
UNDER 37 C.F.R. 1.62

This is a request for filing under the file wrapper continuing application procedure, 37 C.F.R. 1.62, for a continuation application.

I. Particulars of Prior Application

- A. Application Serial No. 08/420,233, filed April 11, 1995, Examiner Patrick Niland, Art Unit 1511.
- B. Title as originally filed and as last amended BONDED VEHICULAR GLASS ASSEMBLIES UTILIZING TWO-COMPONENT URETHANES, AND RELATED METHODS OF BONDING.
- C. Name of Applicant and correspondence address of Application:  
Jeffrey A. Lewno  
7165 Rolling Hills Drive  
Hudsonville, MI 49426  
  
A United States citizen

Post Office Address: same

The above-identified application, in which no payment of issue fee, abandonment of, or termination of proceedings has occurred, is hereby expressly abandoned as of the filing date of this new application. Please use the contents of the prior application file wrapper, including the drawings, as the basis papers for the new application. The prior art of record in the prior application is considered of record in the new application.

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EOT To Group

It is understood that secrecy under 35 U.S.C. § 122 is hereby waived to the extent that if information or access is available to any one of the applications in the file wrapper of a 37 C.F.R. 1.62 application, be it either this application or a prior application in the same file wrapper, the PTO may provide similar information or access to all other applications in the same file wrapper.

II. Inventorship Statement

This application discloses and claims only the subject matter disclosed in the prior application whose particulars are set out above.

The inventorship for all the claims in this application is the same.

III. Identification of Claims for Further Prosecution

The fees to be charged as based on the number of claims remaining as a result of the Preliminary Amendment enclosed herewith. Entry of the Preliminary Amendment is requested.

IV. Fee Calculation (37 C.F.R. 1.16)

Claims for Fee Calculation

Filing Fee:

Basic Fee	\$770.00	\$ 770.00
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Additional Fees

Each independent claim in excess of three, times \$80.00	\$1040.00
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Number of claims in excess of twenty, times \$22.00	\$2266.00
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Filing multiple dependent claims per application \$260.00	\$ .00
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Total Filing Fee	\$4076.00
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V. Fee Payment Being Made at this Time

Attached is the filing fee in the amount of \$4076.00. Total fees enclosed are \$4076.00.

VI. Authorization to Charge Additional Fees

The Commissioner is hereby authorized to charge the following additional fees which may be required by this paper during the entire pendency of this application to Account

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No. 22-0190, including 37 C.F.R. 1.16(a), (f) or (g) (filing fees); 37 C.F.R. 1.16(b), (c) and (d) (presentation of extra claims); and 37 C.F.R. 1.17 (application processing fees).

VII. Instructions as to Overpayment

Please credit Account No. 22-0190.

VIII. Relation Back to Prior Applications - 35 U.S.C. 120

A cross reference to the prior related application Serial No. 08/420,233 is included in the Preliminary Amendment enclosed herewith.

IX. Assignment

The prior application is assigned of record to Donnelly Corporation, 414 East Fortieth Street, Holland, Michigan 49423. Recorded at Reel 7610, Frame 0509, on April 11, 1995.

X. Power of Attorney

The Power of Attorney in the prior application is to Van Dyke, Gardner, Linn & Burkhart, LLP, of which Daniel Van Dyke, No. 25 046; Donald S. Gardner, No. 25 975; Terence J. Linn, No. 30 283; Frederick S. Burkhart, No. 29 288 and Catherine S. Collins, No. 37 599, are members of the bar of the State of Michigan.

Please address all future correspondence and phone calls to:

Donald S. Gardner  
Van Dyke, Gardner, Linn & Burkhart, LLP  
2851 Charlevoix Drive, S.E.  
P.O. Box 888695  
Grand Rapids, MI 49588-8695  
(Phone) 616-975-5500  
(Fax) 616-975-5505

XI. Maintenance of Co-Pendency of Prior Application

The pendency of the prior application should be maintained to allow filing of the present file wrapper continuing application. Inasmuch as the due date for Response to the final rejection in the prior application is due within six months from the date of the final rejection, i.e., on or before October 24, 1997, and inasmuch as a Request for Extension of Time for two months to and including August 24, 1997, for the prior application Serial No. 08/420,233 is filed herewith, the present application is co-pending with that application because of the present filing date.

XII. Request for Extension of Time in the Prior Application

A request for a two-month extension of time for taking action in the prior application Serial No. 08/420,233 is enclosed herewith along with the appropriate fee. The

request for extension is to and including August 24, 1997. A check in the amount of \$390 to cover the extension fee is attached.

XIII. Abandonment of Prior Application


Please abandon the prior application at a time when the present application is pending or when this application is granted a filing so as to make this application co-pending with the prior application.

Respectfully submitted,

JEFFREY A LEWNO

By: Van Dyke, Gardner, Linn & Burkhart, LLP

8/22/97  
Date

  
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PATENT  
DON02 P-677  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner : P. Niland  
Group : 1511  
Applicant : Jeffrey A. Lewno  
For : BONDED VEHICULAR GLASS ASSEMBLIES UTILIZING  
TWO-COMPONENT URETHANES, AND RELATED  
METHODS OF BONDING

BOX FWC  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

PRELIMINARY AMENDMENT

Prior to Examination of this file wrapper continuation application, please  
amend the application as follows:

IN THE SPECIFICATION

Page 1, line 2:

Please insert the following:

--CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Serial No.  
08/420,233, filed April 11, 1995, by Jeffrey A. Lewno--.

IN THE CLAIMS:

Please cancel claims 5, 25-33, 38, 50, 51, 53-59, 75, 93, 94, 96-98 and 111.

Please amend claims 1, 14, 18, 37, 39, 41, 47, 60, 61, 70, 71, 72, 76, 78, 80,  
88, 89, 99, 110, 116, 122-127, 129 and 130 as follows:

-1- (twice amended)

A vehicular window assembly suitable for use in a vehicle, said window assembly comprising:

a glass panel having a first surface and an opposing second surface;

a load-bearing attachment member selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members; and

a layer of a rapid set, rapid cure, two-component urethane adhesive disposed between said first surface of said glass panel and said attachment member, said layer of adhesive cured to form a joint suitable for use on [a] the vehicle;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said glass panel and said attachment member, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

said layer of cured adhesive bonding said load bearing attachment member to said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said bonded load bearing attachment member on said second surface of said panel.

-14- (amended)

The vehicular window assembly of claim 1 further comprising:

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a glass frit layer disposed on said glass panel, said glass frit layer being disposed between said first surface of said glass panel and said layer of cured adhesive such that said layer of cured adhesive bonds said load bearing attachment member directly to said glass frit layer.

-18- (twice amended)

A bonded vehicular assembly suitable for use in a vehicle, said assembly comprising:

a glass substrate having a first surface and an opposing second surface;

a load-bearing attachment member comprising a material selected from the group consisting of metal, plastic, and combinations thereof, said attachment member being selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members; and

a layer of a rapid set, rapid cure, two-component urethane adhesive disposed between and bonding said first surface of said glass substrate [and] to said attachment member, and

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said glass panel and said attachment member, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes

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from the time of adhesive set, and wherein upon curing of said adhesive, a joint suitable for use on a vehicle is formed;

said layer of cured adhesive bonding said load bearing attachment member to said first surface of said glass substrate prior to installation of said assembly in the vehicle and without exposure of said bonded load bearing attachment member on said second surface of said substrate.

-37- (twice amended)

The movable bonded vehicular window assembly of claim 36 wherein said assembly further comprises:

a glass frit layer disposed on said glass substrate , said glass frit layer being disposed between said first surface of said glass substrate and said layer of urethane adhesive such that said layer of urethane adhesive bonds said load bearing attachment member directly to said glass frit layer.

-39- (twice amended)

The bonded vehicular window assembly of claim [38] 36 wherein said attachment member is a hinge [comprises] having a first portion and a second portion that is movable with respect to said first portion, and wherein said first portion is bonded to said first surface of said glass substrate by an [effective] amount of said urethane adhesive disposed between and contacting said first portion and said glass substrate.

-41- (twice amended)

A vehicular panel assembly suitable for use in a vehicle, said assembly comprising:

a glass substrate having a first surface and an opposite second surface;

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at least one load-bearing attachment member affixed to said glass [member] substrate and selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members; and

a layer of a two-component urethane adhesive disposed between and [affixing] bonding said at least one attachment member to said first surface of said glass substrate, said layer of adhesive cured to form a joint suitable for use on a vehicle, wherein said adhesive comprises an isocyanate component and a polyol component wherein said adhesive further includes an amine-based catalyst and achieves a set within about 3 minutes;

said layer of cured adhesive bonding said load bearing attachment member to said first surface of said glass substrate prior to installation of said assembly in the vehicle and without exposure of said bonded load bearing attachment member on said second surface of said substrate.

-47- (twice amended)

A method of forming a bonded vehicular assembly by adhering a load-bearing attachment member to a glass surface, said method comprising:

providing a substrate having a first glass surface and an opposing second surface;

providing an attachment member to be adhered to said first glass surface, said attachment member having a mounting surface;

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selecting said attachment member from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members;

providing a rapid set, rapid cure, two-component urethane adhesive;

depositing an [effective] amount of said adhesive on at least one of said attachment member mounting surface and said first glass surface;

positioning said attachment member and said substrate such that said adhesive is disposed between and contacting said attachment member and at least a portion of said first glass surface of said substrate without exposure of said attachment member on said opposing second surface of said substrate;

said positioning being achieved within about 3 minutes after said depositing step; and

curing said adhesive, said cured adhesive bonding said attachment member to said first glass surface prior to installation of said assembly in the vehicle.

-60- (amended)

The method of claim 47 further comprising, prior to depositing said adhesive, a step of:

depositing a layer of at least one of an adhesion promoter and a primer to at least one of said first glass surface and said attachment member mounting surface.

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-61- (amended)

The method of claim 47 wherein the thickness of said adhesive disposed between said attachment member and at least a portion of said first glass surface is from about 0.01 mm to about 4.0 mm.

-70- (twice amended)

A method of forming a bonded vehicular assembly by adhering an attachment member to a glass substrate, said method comprising:

providing a glass substrate having a first surface and an opposing second surface;

providing a load-bearing attachment member to be adhered to said first surface of said glass substrate, said attachment member having a mounting surface;

selecting said attachment member from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members;

providing a rapid set, rapid cure, two-component urethane adhesive;

forming a frit layer on said first surface of said glass substrate;

depositing an [effective] amount of said adhesive on at least one of said attachment member mounting surface and said frit layer;

positioning said attachment member and said substrate such that said adhesive is disposed between and contacting said attachment member and at least a portion of said frit layer formed on said substrate without exposure of said attachment member on said second

[illegible]

curing said adhesive, said cured adhesive bonding said attachment member to said first glass surface prior to installation of said assembly in the vehicle.

A moveable vehicular window assembly comprising:

a load-bearing attachment member comprising a material selected from the group consisting of metal, plastic, and combinations thereof, said attachment member being selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members; and

a layer of a rapid set, rapid cure, two-component urethane adhesive disposed between said layer of frit and said attachment member, wherein said adhesive comprises an isocyanate component and a polyol component, said layer of adhesive cured to form a joint suitable for use on a vehicle;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said [glass panel] layer of frit and said attachment member, and wherein said

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rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

said layer of cured adhesive bonding said load bearing attachment member to said layer of frit on said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said load bearing attachment member on said second surface of said panel.

-72- (twice amended)

The movable vehicular window assembly of claim 71 wherein said rapid set characteristic is such that after mixing said isocyanate component and said polyol component, and after relatively promptly contacting said layer of frit on said glass panel to said attachment member, said layer of frit on said glass panel and said attachment member are held by said adhesive against movement resulting from the weight of said panel and said attachment member, and held by said adhesive against movement resulting from application of a relatively slight force, within said time period.

-76- (amended)

The movable vehicular window assembly of claim [75] 71 wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 50 minutes.

-78- (amended)

The moveable vehicular window assembly of claim 71 wherein said group from which said attachment member is selected [from the group consisting of mounting components, hinges, clevises, latches, lift brackets, division bars, guide tracks, handles, guide

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pins, strut-mounting hardware, strikers,] further consists of brake lights, [power-mounting hardware, rails,] gaskets, [antennas, wiper mounts, cosmetic articles,] and rearview mirrors.

-80- (amended)

The movable vehicular window assembly of claim 71 further comprising:

a layer of at least one of an adhesive promoter and a primer disposed between said layer of frit on said glass panel and said layer of adhesive.

-88- (twice amended)

A window assembly suitable for use in a vehicle, said assembly comprising:

a glass panel having a first surface and an opposing second surface;

a load-bearing attachment member adapted for attachment to said first surface of said glass panel and selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members; and

a layer of a rapid set, rapid cure, two-component urethane adhesive disposed between said first surface of said glass panel and said attachment member, wherein said adhesive comprises an isocyanate component and a polyol component, and wherein said adhesive is capable, upon curing, to form a bond that can withstand a tensile force of at least 5 lbs/in<sup>2</sup>, wherein said adhesive achieves a set within a time period of about 3 minutes or less, and includes an amine catalyst, said layer of adhesive bonding said load-bearing attachment member to said first surface of said glass panel prior to installation of said assembly in the

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vehicle and without exposure of said bonded load-bearing attachment member on said second surface of said panel.

-89- (twice amended)

A hinged vehicular window assembly for a vehicle suitable for use in a vehicle, said assembly comprising:

a glass panel having a first surface and an opposing second surface and comprising a layer of glass frit disposed on [at least a portion of one of its surfaces] said first surface;

a hinged mounting member having a first portion bonded to said glass frit layer on said first surface of said glass panel by an [effective] amount of a rapid set, rapid cure, two-component urethane adhesive disposed between said glass frit layer on said first surface of said glass panel and said first portion, said adhesive having a cure time within about 60 minutes or less, and said adhesive cured to form a joint suitable for use on a vehicle, said hinged mounting member further having a second portion adapted [for affixment] to be affixed to a mounting surface, said urethane adhesive bonding said first portion of said hinged mounting member to said glass frit layer on said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said hinged mounting member on said second surface of said glass panel.

-99- (amended)

The hinged assembly of claim 89 further comprising:

a layer of at least one of an adhesion promoter and a primer disposed between said glass frit layer on said first surface of said glass panel and said adhesive.

-110- (twice amended)

A movable window assembly for a vehicle [suitable for use in a vehicle], said assembly comprising:

a glass panel having a first surface and an opposing second surface; and

a load-bearing attachment member bonded to first surface of said glass panel by an [effective] amount of a rapid-set adhesive disposed between said mounting member and said first surface of said glass panel, said adhesive comprising an isocyanate component and a polyol component, said attachment member being selected from the group consisting of mounting components, hinges, clevises, latches, lift brackets, division bars, guide tracks, handles, guide pins, strut-mounting hardware, strikers, brake lights, power-mounting hardware, rails, gaskets, antennas, wiper mounts, cosmetic articles and rearview mirrors;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said glass panel and said attachment member, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

said adhesive bonding said load-bearing attachment member to said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said bonded load-bearing attachment member on said second surface of said glass panel.

-116- (amended)

The movable window assembly of claim 110 further comprising:

a layer of at least one of an adhesion promoter and a primer disposed between said first surface of said glass panel and said adhesive.



-122- (amended)

The movable window assembly of claim 110 wherein said assembly further comprises:

a frit layer disposed on said first surface of said glass panel, said frit layer being disposed between said first surface of said glass panel and said adhesive such that said adhesive bonds said load bearing member directly to said frit layer.

-123- (twice amended)

A positionable sunroof adapted and suitable for use in a vehicle, said sunroof comprising:

a glass panel having a first surface and an opposing second surface;

at least one load-bearing hinge attachment component having a first portion [affixed] bonded directly to said first surface of said glass panel and a second portion being adapted for attachment to a vehicle mounting surface; and

a layer of a rapid set, rapid cure, two-component urethane adhesive disposed between a portion of said first surface of said glass panel and said first portion of said hinge attachment component, wherein said adhesive is cured thereby [affixing] bonding said first portion of said hinge attachment component directly to said glass panel;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said glass panel and said hinge attachment component, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

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said layer of adhesive bonding said hinge attachment component to said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said hinge attachment component on said second surface of said glass panel.

-124- (twice amended)

A movable door lift window assembly adapted and suitable for use in a vehicle, said door lift window assembly comprising:

a glass panel having a first surface and an opposing second surface;

at least one load-bearing lift bracket attachment member bonded directly to said first surface of said glass panel by an [effective] amount of a rapid set, rapid cure, two-component urethane adhesive disposed between said first surface of said glass panel and said at least one lift bracket attachment member;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said glass panel and said bracket attachment member, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

said adhesive bonding said load-bearing lift bracket attachment member to said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said lift bracket attachment member on said second surface of said glass panel.

-125- (twice amended)

A liftgate window assembly adapted and suitable for use in a vehicle, said liftgate comprising:

a glass panel having a first surface and an opposing second surface; and

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at least one load-bearing hinge attachment member having a first member [affixed] bonded directly to said first surface of said glass panel by a layer of a rapid set, rapid cure, two-component adhesive disposed between a portion of said first surface of said glass panel and said first member, said hinge further having a second member positionably movable with respect to said first member and adapted for attachment to a vehicle;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said adhesive between said first surface of said glass panel and said hinge attachment member, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

said adhesive bonding said load-bearing hinge attachment member to said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said hinge attachment member on said second surface of said glass panel.

-126- (twice amended)

A sliding window assembly adapted and suitable for use in a vehicle, said assembly comprising:

a first glass panel having a first surface and an opposing second surface;

at least one guide track bonded directly to [an edge of ]said first surface of said first glass panel by an [effective] amount of a rapid set, rapid cure, two-component urethane adhesive, said guide track having a channel configured to slidably receive a glass panel; and

a second glass panel slidably disposed in said channel of said guide track;

wherein said rapid set characteristic is such that said adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of said

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adhesive between said glass panel and said channel, and wherein said rapid cure characteristic is such that said adhesive cures in a time period of less than about 60 minutes from the time of adhesive set;

said adhesive bonding said guide track to said first surface of said first glass panel prior to installation of said assembly in the vehicle and without exposure of said guide track on said second surface of said first glass panel.

-127- (amended)

The sliding window assembly of claim 126 wherein said first surface of said first glass panel has a pin component bonded to it by an [effective] amount of said adhesive, and said second glass panel has a latch component bonded to it by an [effective] amount of said adhesive, wherein said latch component is adapted to releasably engage said pin component.

-129- (amended)

The sliding window assembly of claim 128 wherein said at least one guide track is bonded to [an edge of] said third glass panel by an [effective] amount of said adhesive.

-130- (amended)

The sliding window assembly of claim 129 wherein said at least one guide track comprises:

an upper guide track bonded by an [effective] amount of said adhesive to an upper edge of said first surface of said first glass panel and an upper edge of said third glass panel; and

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a lower guide track bonded by an [effective] amount of said adhesive to a lower edge of said first surface of said first glass panel and a lower edge of said third glass panel.

Please add the following new claims 131-147:

-131- (new)

A vehicular window assembly suitable for use in a vehicle, said window assembly comprising:

a glass panel having a first surface and an opposing second surface;

a load-bearing attachment member selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components, and hinge members; and

a layer of a rapid set, rapid cure, two-component urethane adhesive disposed between said first surface of said glass panel and said attachment member, said adhesive comprising a mixture of an isocyanate component and a polyol component mixed prior to deposition on said glass panel, said layer of adhesive being cured such that said layer of cured adhesive bonds said load bearing attachment member to said first surface of said glass panel;

wherein said rapid set characteristic is such that after mixing said isocyanate and polyol components, and after promptly contacting said attachment member with said layer of adhesive and said first surface of said glass panel, said adhesive sets whereby said attachment member and said glass panel are held by said adhesive against movement resulting from the weight of said attachment member on said panel, and wherein said rapid cure

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characteristic is such that said adhesive cures to bond said attachment member to said first surface of said glass panel in a time period of less than about 60 minutes from the time of adhesive set;

said layer of cured adhesive bonding said load bearing attachment member to said first surface of said glass panel prior to installation of said assembly in the vehicle and without exposure of said attachment member on said second surface of said panel.

-132- (new)

The bonded vehicular assembly of claim 131 wherein said polyol component includes a high amine density plural amine in an amount of from about 2% to about 20% by weight of said polyol component.

-133- (new)

The bonded vehicular assembly of claim 131 wherein said adhesive further comprises: at least one filler agent in at least one of said isocyanate component and said polyol component, wherein said filler agent is in an amount of from about 15% to about 50% of the total weight of said polyol and isocyanate components.

-134- (new)

The bonded vehicular assembly of claim 133 wherein said filler agent is in an amount of from about 20% to about 30% of the total weight of said polyol and said isocyanate components.

-135- (new)

The bonded vehicular assembly of claim 133 wherein said filler agent is selected from the group consisting of silicates, silica, calcium carbonate, talc, and combinations thereof.

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-136- (new)

The bonded vehicular assembly of claim 131 wherein said isocyanate component comprises compounds with isocyanate functionality and said polyol component comprises compounds with hydroxy and/or amino functionality, and wherein the ratio of isocyanate functionality to hydroxy and amino functionality is from about 0.9 to about 2.0.

-137- (new)

The bonded vehicular assembly of claim 136 wherein said ratio of isocyanate functionality to hydroxy and amine functionality is from about 1.03 to about 1.4.

-138- (new)

The bonded vehicular assembly of claim 137 wherein said ratio of isocyanate functionality to hydroxy and amino functionality is from about 1.1 to about 1.3.

-139- (new)

The bonded vehicular assembly of claim 132 wherein said high amine density plural amine is a compound having an amine to carbon ratio of from about 1.0 to about 0.25:1, wherein (i) the compound contains at least 3 amine groups except if said compound is aromatic then said compound contains at least 2 amine groups, and (ii) the compound contains from 2 to 24 carbon atoms.

-140- (new)

The bonded vehicular assembly of claim 139 wherein said high amine density plural amine has a molecular weight of from about 115 to about 5000.

-141- (new)

The bonded vehicular assembly of claim 139 wherein said high amine density plural amine comprises a reaction product of (i) at least one of pentaerythritol, glucose, and

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sucrose, and (ii) at least one member selected from the group consisting of ammonia and amino alkanes of the formula  $C_xH_nNH_2$ , wherein x ranges from 1 to 20 and n is such that the alkane is saturated.

-142- (new)

The bonded vehicular assembly of claim 131 further comprising a layer of at least one of an adhesion promoter and a primer disposed between said first surface of said glass panel and said layer of adhesive.

-143- (new)

The bonded vehicular assembly of claim 142 wherein said at least one of said adhesion promoter and said primer is selected from the group consisting of silane compounds, titanium coupling agents, zirconium coupling agents, and moisture-curable urethane prepolymers.

-144- (new)

The bonded vehicular window assembly of claim 143 wherein said assembly is a movable vehicular window assembly.

-145- (new)

The bonded window assembly of claim 144 wherein said assembly further comprises a glass frit layer disposed on said first surface of said glass panel.

-146- (new)

The bonded window assembly of claim 144 wherein said load bearing attachment member is a hinge, said hinge comprising a first portion and a second portion that is movable with respect to said first portion, and wherein said first portion is bonded to said



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first surface of said glass panel by said adhesive disposed between and contacting said first portion and said glass panel.

-147- (new)

The bonded window assembly of claim 146 wherein said second portion of said hinge is affixed to a vehicular mounting surface.

-148- (new)

A vehicular window assembly suitable for use in a vehicle, said window assembly comprising:

a glass panel having a first surface and an opposing second surface and comprising a layer of glass frit disposed on said first surface;

a load-bearing attachment member selected from the group consisting of mounting members, hinges, clevises, latches, lift brackets, division bars, positionable members, guide tracks, handles, guide pins, strut-mounting hardware, strikers, struts, power-mounting hardware, track members, rails, latch members, antennas, wiper mounts, sealing members, cosmetic articles, pin components and hinge members; and

said load-bearing attachment member bonded to said layer of glass frit by a layer of rapid set, rapid cure, two-component urethane adhesive disposed between said glass frit layer and said attachment member, said layer of adhesive being cured to form a joint suitable for use on a vehicle, said urethane adhesive being formed from an isocyanate component and a polyol component which are combined by mixing prior to disposition between said glass frit layer and said attachment member;

said layer of cured adhesive bonding said load-bearing attachment member to said first surface of said glass panel prior to installation of said assembly in the vehicle and

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without exposure of said bonded load-bearing attachment member on said second surface of said panel;

said glass panel having a weight of at least about 3 kilograms and an area of at least about 250 square inches.

-149- (new)

The vehicular window assembly of claim 148 wherein said assembly is a movable window assembly.

-150- (new)

The vehicular window assembly of claim 149 wherein said movable window assembly further comprises at least one hinge bonded to said glass panel.

-151- (new)

The vehicular window assembly of claim 148 wherein said window assembly comprises a flush mounted glazing.

-152- (new)

The vehicular window assembly of claim 148 wherein said glass panel weighs at least 5 kilograms.

-153- (new)

The vehicular window assembly of claim 152 wherein said vehicle is one of an automobile, a truck, a van, a mini-van, and a utility vehicle.

#### REMARKS

This Preliminary Amendment responds to the final Office Action mailed March 24, 1997, in the parent application Serial No. 08/420,333. Claims 1-4, 6-24, 34-37, 39-48, 60-74, 76-91, 98-110 and 112-130 remain in the application. Claims 5, 25-33, 38, 50, 51, 53-

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59, 75, 93, 94, 96-98 and 111 have been cancelled herein. Claims 1, 14, 18, 37, 39, 41, 47, 60, 61, 70, 71, 72, 76, 78, 80, 88, 89, 99, 110, 116, 122-127, 129 and 130 have been amended. In addition, claims 131-153 have been added. Reconsideration of this continuation application in view of those amendments and the interview conducted with Examiner Philip Niland on May 29, 1997, is respectfully requested.

Initially, counsel for Applicant wishes to advise the Examiner that the present Preliminary Amendment differs slightly from the Response to the Final Rejection in the parent application Serial No. 08/420,233, filed June 20, 1997, but not entered by the Examiner as set forth in the Advisory Action mailed July 18, 1997. More specifically, various dependent claims have been eliminated. Further, the invention defined by the independent claims has been clarified after reviewing the comments of the Examiner in the Advisory Action. Specifically, Applicant now defines in each claim that the layer of cured adhesive bonding the load bearing attachment member or other member such as a hinged mounting member, hinge attachment component, load bearing lift bracket attachment member, guide track or the like as defined in the various independent claims is bonded to the glass panel or substrate prior to installation of the window assembly in the vehicle as well as without exposure of the bonded attachment member on the second surface of the panel or substrate. In this regard, the Examiner's statement that the previously proposed claims did not exclude structural members such as channels in the front windshields of a car is now obviated since the structural members referenced by the Examiner, such as the channels for receiving the front windshields, are part of the vehicle itself, not the window assembly of the present invention or the method for making such a window assembly as defined in the present claims. Support for the fact that the

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present inventive window assemblies are formed prior to installation of the assembly in the vehicle can be found at various places in the specification including page 19, lines 9-17.

In addition, the Examiner also commented in the Advisory Action that the claims required further consideration regarding the defined adhesives with respect to those set forth in Repp et al. 5,551,197. Applicant wishes to point out that while Repp et al. teaches a wide variety of adhesives, it does not disclose, teach or suggest the specific type of adhesive defined in Applicant's present claims, namely, a rapid set, rapid cure, two-component urethane adhesive such as is described in Applicant's specification such as at pages 17-26, for example. In addition, it is noted that new claims 131-153 state that the rapid set, rapid cure, two-component urethane adhesive comprises a mixture of an isocyanate component and a polyol component mixed prior to deposition of the adhesive on the glass panel. New claims 131-147 describe additional rapid set characteristics of that adhesive as well. In addition, it is noted that the present invention distinguishes prior known single-component and other urethane adhesives in the "Background of the Invention" in Applicant's present specification at pages 2-4, and in the extensive experimental testing disclosed at pages 31-42, and in the drawing figures such as Figs. 9, 10, 11. Accordingly, it is respectfully submitted that Applicant's amended claims herein fully distinguish and are patentable over Repp et al. '197.

The undersigned counsel for Applicant and Applicant's representative, Dr. Niall R. Lynam, Senior Vice President and Chief Technical Officer of the Assignee of the present application, namely, Donnelly Corporation of Holland, Michigan, wish to sincerely thank the Examiner for the courtesies extended and the helpfulness provided by the Examiner during the interview conducted May 29, 1997, concerning the present invention. During the interview, Dr. Lynam described the status of the prior art window assemblies for vehicles prior

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In addition, during the interview, Dr. Lynam also exhibited a sample of a window assembly such as that shown in Figs. 3 and 4 of the present application which includes a load-bearing attachment member adhered by a rapid set, rapid cure, two-component urethane adhesive disposed between a first surface of the glass panel and the attachment member for bonding the attachment member to the glass panel without exposure of the attachment member on the opposed second surface of the panel. The photographs included in the attached Exhibit B illustrate the window assembly of the present invention exhibited during the interview, both as manufactured and as installed in a Chrysler MiniVan. In addition, in the interview, Dr. Lynam exhibited a video tape of the manufacturing process for producing the inventive window assembly shown in Exhibit B. A million units of the window assembly shown in Exhibit B have been manufactured and sold to Chrysler for installation in such MiniVans. Further, the prior art cited and mentioned in the Office Action was discussed, along with Repp et al. United States Patent 5,551,197 which is assigned to the same assignee

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as the present invention and was copending with but issued after the filing of the present application on September 3, 1996. Repp et al. '197 relates to other aspects of the window assembly shown in Exhibit B.

It is noted that the originals of Exhibits A and B were previously submitted of record in the parent application in the Response to the Final Rejection filed June 20, 1997.

At the conclusion of the interview, the Examiner stated that he felt the subject matter of the inventive window assembly shown and discussed during the interview was patentable and suggested that the Applicant submit appropriate amendments in the claims to exclude attachment members on the non-adhesive side of the glass panel and to exclude mechanical attachment members extending through the glass as are conventionally used in vehicle windows. The present amendments are submitted in keeping with the discussions in the interview as well as to the Examiner's comments in the Advisory Action in Serial No. 08/420,233 mailed July 18, 1997. As set forth below, it is respectfully submitted that these claims, as amended, are allowable over all of the art of record, including Repp et al. '197.

As mentioned during the interview, the present amendments clarify Applicant's invention and define a vehicle window assembly as well as a method for manufacturing a vehicle window assembly including a glass panel or substrate, a load-bearing attachment member bonded to the glass panel or substrate prior to installation of the assembly on the vehicle by a layer of rapid set, rapid cure, two-component urethane adhesive disposed between a first surface of the glass panel or substrate and the attachment member, the urethane adhesive having a rapid set characteristic and rapid cure characteristic and bonding the attachment member to the glass panel or substrate without exposure of the load-bearing attachment member on the opposing second surface of the panel. In each of the independent

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claims 1, 18, 41, 47, 70, 71, 88, and in newly added claims 131-153, the load-bearing attachment member is variously defined as being selected from a group of attachment members as set forth in those claims. Claim 110 includes a modified list of attachment members selected from the group consisting of mounting components, hinges, clevises, latches, lift brackets, division bars, guide tracks, handles, guide pins, strut mounting hardware, strikers, brake lights, power mounting hardware, rails, gaskets antennas, wiper mounts, cosmetic articles and rearview mirrors. Further, independent claims 89, 123, 124, 125, and 126 do not include a list of load-bearing members but mention one variety of attachment members. For example, claim 89 defines a hinged vehicle window assembly with a hinged mounting member. Claim 123 defines positionable sunroof with a load-bearing hinge attachment component. Claim 124 defines movable door lift window assembly with a load-bearing lift bracket attachment. Claim 125 defines a liftgate window assembly with a load-bearing hinge attachment member. Claim 126 defines a sliding window assembly with a guide track.

In addition, independent claims 1, 18, 71, 110, 123, 124, 125, and 126, as amended, define the rapid set characteristic such that the two-component urethane adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of the adhesive between the glass panel or substrate and the attachment member, and wherein the rapid cure characteristic is such that the adhesive cures in a time period of less than about 60 minutes from the time of adhesive set.

Claim 41, as amended, defines the two-component urethane as comprising an isocyanate component and a polyol component wherein the adhesive further includes an amine based catalyst and achieves a set within about 3 minutes.

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Claims 47 and 70, as amended, define a method for forming a bonded vehicular assembly including the provision of a rapid set, rapid cure, two-component urethane adhesive with the positioning being achieved within about 3 minutes of the adhesive depositing step.

Claim 88, as amended, defines an isocyanate component and a polyol component for the rapid set, rapid cure, two-component urethane adhesive wherein the adhesive is capable upon curing to form a bond that can withstand a tensile force of at least 5 pounds per square inch and achieve a set within a time period of about three minutes or less and includes an amine catalyst.

Claim 89, as amended, defines a rapid set, rapid cure, two-component urethane adhesive having a cure time within about 60 minutes or less.

New claim 131 includes a definition of the two-component urethane adhesive as being mixture of isocyanate component and polyol component mixed prior to deposition on the glass panel with a rapid set characteristic such that, after mixing of the two components, and after promptly contacting the attachment member with the layer of adhesive and the first surface of the glass panel, the adhesive sets such that the attachment member and glass panel are held by the adhesive against movement resulting from the weight of the attachment member on the panel and the adhesive cures to bond the attachment member to the first surface of the glass panel within a time period of less than about 60 minutes from the adhesive set.

New claims 148-153 define a vehicular window assembly for use in a vehicle comprising a glass panel, a frit layer, a load-bearing attachment member selected from a defined group, and a layer of rapid set, rapid cure, two-component urethane adhesive bonding the attachment member to the glass frit. The urethane adhesive includes an isocyanate



component and a polyol component which are mixed prior to disposition on the glass panel. Also, the glass panel has a weight of at least about 3 kilograms and an area of at least about 250 square inches. As in the other claims, the load-bearing attachment member is bonded on the glass panel prior to installation of the assembly in the vehicle and without exposure of the attachment member on the second surface of the panel.

New claims 131-153 are fully supported by the specification and no new matter has been added.

As explained previously of record, the dependent claims on the various independent claims further define the isocyanate and/or polyol components of the two-component urethane adhesive, or the inclusion of an adhesion promoter and a primer between the glass panel or layer of adhesive, or the use of a frit layer between the adhesive and the attachment member, as well as various specific forms for the vehicle window assembly. Dependent claims 14, 37, 39, 60, 61, 72, 76, 78, 80, 99, 116, 122, 127, 129 and 130 have been amended to be consistent with the amended language of the respective claims from which they depend.

As amended, the claims remaining in the application and new claims 131-153 are not disclosed, taught or suggested by the references of record including Repp et al. 5,551,197. The claims, as amended, clarify Applicant's invention and clearly distinguish the claimed invention from the prior art mechanical attachments such as holes through the glass panel, wraparound hinges, and like prior art, such as described at page 1, lines 17 to end and page 2, lines 1-9 of the present specification. Such prior art mechanical attachment of components to glass necessitates the use of a mounting member or fastener on the opposite side of the glass from which the component is placed. This is undesirable in terms of both

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cosmetic appeal, and resulting aerodynamics, if the mounting member or fastener projects from and/or is exposed on the exterior surface of the glass panel. See especially page 2, lines 4-7 of the specification.

As noted in the Office Action, the Examiner has cited many references, some of which pertain to two-component and one-component polyurethane materials, but none of which, as far as can be ascertained, disclose or suggest the problem of load-bearing attachment members on glass panels or substrates, and none of which disclose Applicant's claimed invention which is a unique solution to the problem of mounting load-bearing attachment members to a glass panel or substrate as claimed herein without forming a hole in the glass, using a wraparound hinge, or the like, or without the excessive stresses characteristic of the prior art as noted on page 3 of the specification. While the references teach one-component and two-component polyurethane adhesives in general, or teach sliding windows as in pickup trucks, or set forth general connections between glass panes and gaskets or glass panes and edge rails, the references fail to result in a finding of Applicant's combination with its special adhesive characteristics combined with a load-bearing attachment member and glass panel where the adhesive bonds the attachment member to the glass panel or a frit layer on the glass substrate prior to installation of the assembly in the vehicle without exposure of the load-bearing attachment member on the opposite, second surface of the panel. Many of the references cited by the Examiner refer to single component urethanes which, as discussed in the present specification, such as in the Background of the Invention on pages 1-4 and the experimental testing results on pages 31-43, including in the accompanying tables and figures, show that single component urethanes do not obtain the objectives of the present invention. The rate of set and cure of prior known adhesives such as single component urethanes is

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significantly slower than the rapid set, rapid cure adhesive used in the present invention. As such, those references teach away from the present invention.

More specifically, Ryan et al. 5,342,867 discloses an adhesive composition comprising a polyurethane resin and a specific adhesion promoter, one use of which is to bond automobile windscreens or headlamps in fixed positions on vehicles. This reference fails to disclose any rapid set, rapid cure two-component urethane adhesive bonding a load-bearing attachment member without exposure of the attachment member on the second, opposing surface of the panel as in Applicant's invention defined in the amended claims. Indeed, Ryan et al. '867 merely discloses prior art adhesives such as that described at page 3 of the specification, and those adhesives are different from those now defined in Applicant's amended claims.

Likewise, Sartelet et al. 5,238,767 fails to disclose Applicant's invention. Sartelet et al. '767 merely describes the fitting of glass in a window profile, not the attachment of a load-bearing attachment member to a substrate without exposure of the attachment member on the opposing second surface of a window assembly, as in Applicant's present invention.

Csokasy et al. SAE Paper 910758 discloses encapsulation concepts for RIM urethane on one side of an automobile window, not the use of a rapid set, rapid cure, urethane adhesive for a load-bearing structure as in the present invention.

Mulhaupt et al. '636 and Goel '672 relate to adhering one element to another with no specific structure being noted, especially as set forth in Applicant's amended claims.

Bravet et al. '655 discloses adhering glass into a vehicle, not the combination defined in Applicant's amended claims.

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Schurmann '666 relates to adhering parts to panel and does not include any disclosure of specific two-component, rapid set, rapid cure urethane adhesives as in Applicant's present invention.

Friese et al. '099 merely discloses a specific type of sliding window not the combinations of Applicant's amended claims herein.

Further, Kronbetter '168 and Jackson '984 merely disclose specific structures on windows, not the combination of elements defined by Applicant's invention. Specifically, Jackson '984 is an example of the prior art discussed in Applicant's background since it shows holes drilled through windows to receive fasteners such as that at 25 which are exposed on both sides of the window pane.

Similarly, the remaining references of record, including Repp et al. 5,551,197, fail to disclose the combinations of Applicant's present invention.

Accordingly, none of the references of record, including Repp et al. '197, teach, disclose or suggest the use of a two-component, rapid set, rapid cure, urethane adhesive for attaching a load-bearing member such as that defined in the various claims set forth above to a glass panel or substrate prior to installation of the assembly on the vehicle and without exposure of the load-bearing member on the side of the glass panel or substrate opposite the side to which the component is applied providing the cosmetic appeal and resulting aerodynamic advantages of the present invention.

Accordingly, for the reasons expressed above, and during the interview conducted May 29, 1997, it is respectfully submitted that claims 1-4, 6-24, 34-37, 39-48, 60-74, 76-91, 98-110 and 112-130 and new claims 131-153 are allowable and a Notice of Allowance is earnestly and respectfully solicited therefor.

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Should the Examiner have any questions or need further information or wish to further discuss this Response or the above amendments, he is respectfully requested to telephone counsel for Applicant at the address and number listed below.

Respectfully submitted,

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